

THE INFLUENCE OF DIFFERENT ARCH SUPPORT INSOLE INTERVENTION ON FOOT AFTER PROLONGED RUNNING



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BACKGROUND

The arch shape of the human plays an important role in foot pressure distribution and dynamic stability during long-term walking or running. In recent years, most of the shoes on the market are mainly designed in the medial longitudinal arch supported. In general healthy people, there are not many studies on wearing insoles with transverse arch supported elements, and the related biomechanical effects are still possible to be further explored.

PURPOSE

This study is mainly to observe the effect of wearing different arch supported insoles on angular velocity of ankle before and after prolonged running. Moreover, the study will measure the navicular drop height of participants.

METHODS



Non-functional shoes – Nike revolution 5 (27cm)

Longitudinal arch-supported insole

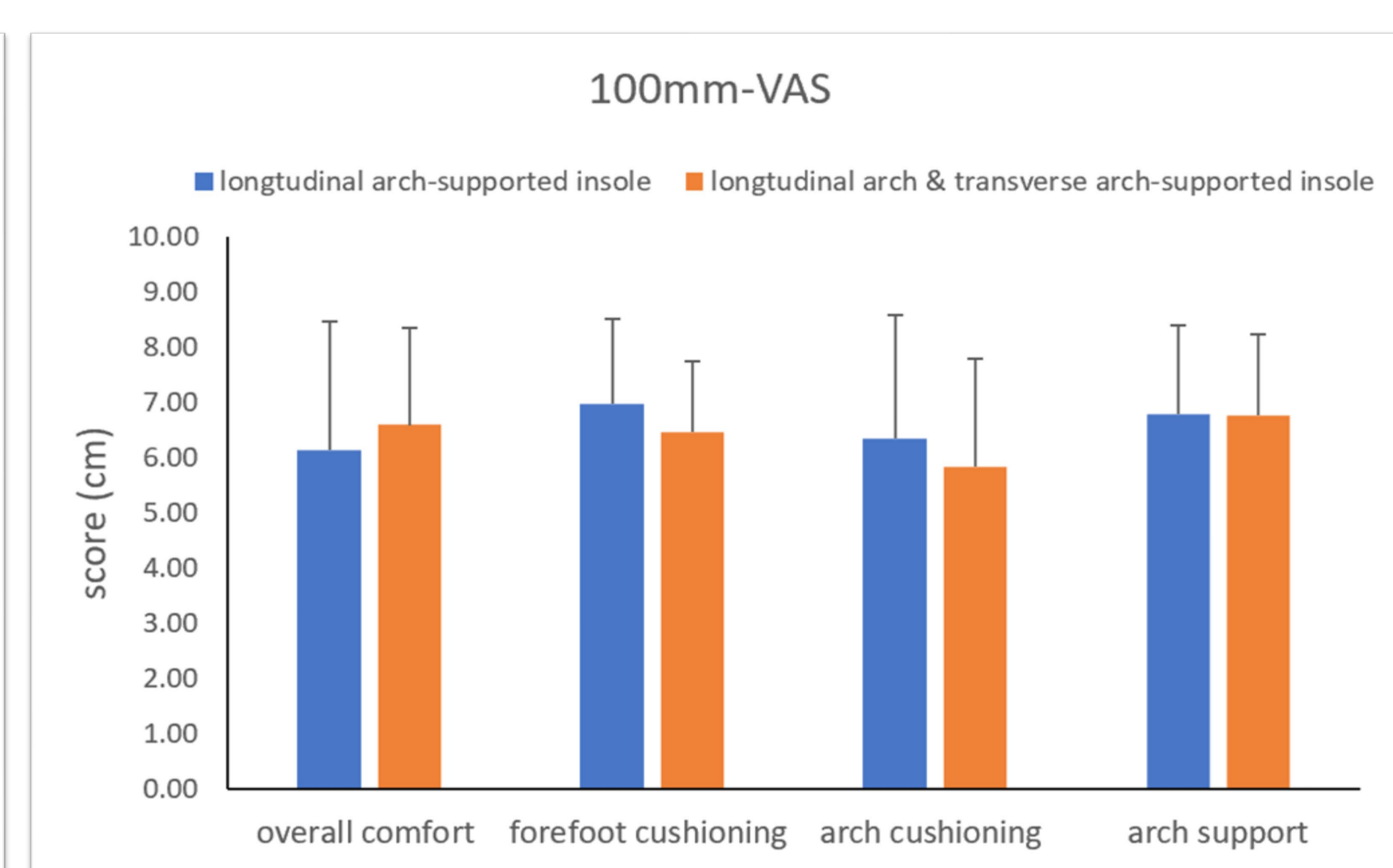
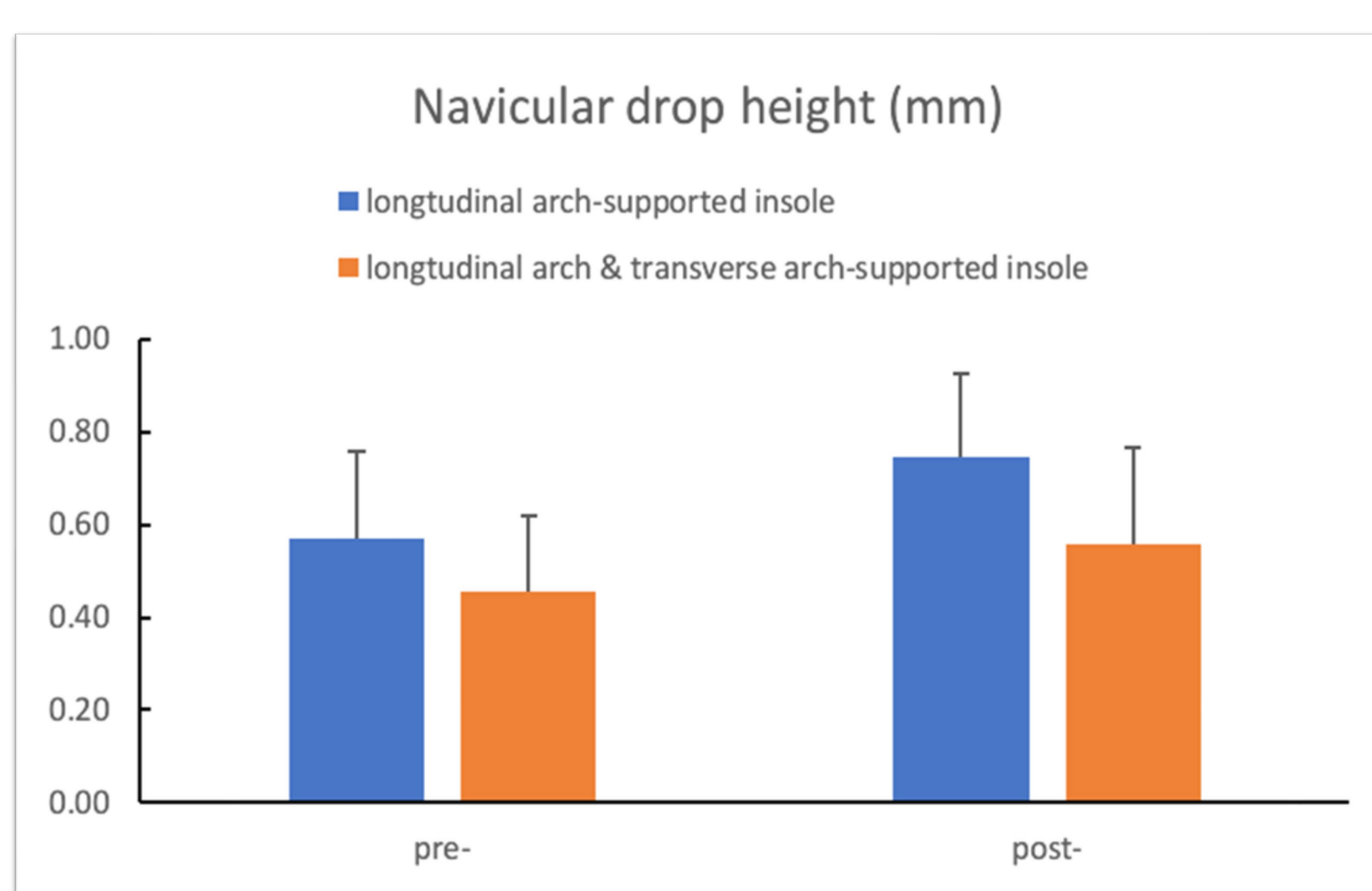
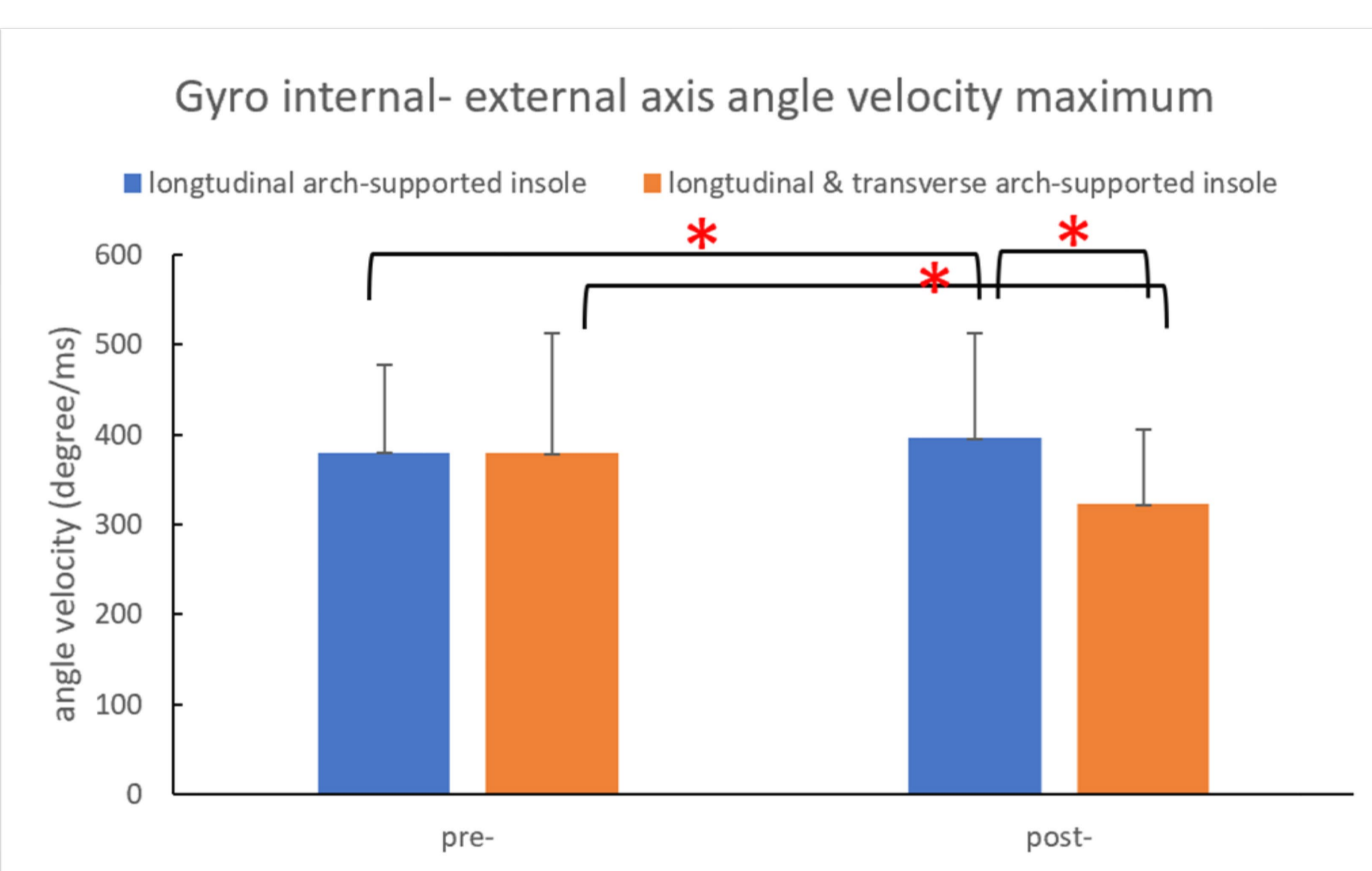
Longitudinal and transverse arch-supported insole

Gyroscope will be placed on the dorsal side of shoes.

The difference in navicular height between the seated and standing position was calculated and represented the subject's navicular drop.

- ✓ 7 male participants with normal arch
- ✓ Graded exercise loading test
- ✓ 70%*maximal speed running test on treadmill
- ✓ Navicular drop test
- ✓ Measuring Comfort Perception of Footwear (100mm-VAS)
- ✓ Polar –heart rate monitor
- ✓ Naxsen – gyroscope (1000Hz)

RESULTS



- 1. Internal angular velocity of angle ($p < .05$)
- Navicular drop height (mm)
- Questionnaire about feeling of wearing insoles

CONCLUSION & SUGGESTION

- ✓ Longitudinal & transverse arch supported insole might have a better support ability after prolonged running.
- ✓ Highly recommend the shoes manufacturers could be developed products toward this direction
- ✓ Need to investigate more further biomechanical information for a better understanding of the relationship between structural modification of the insoles and performance during exercising.